

Claims 1-4, 44 and 45 stand rejected under 35 USC 112, second paragraph. The Examiner rejected the claims for using the term “matched,” on the ground that “the meaning of [the term] in the context of the claims is not clear.” The Examiner also asks at page 3, “[W]hat does it mean that ‘the ferromagnetic phase is *matched* with the grain boundary phase (claim 1, lines 2 and 5, emphasis added by Examiner)?”

Applicants again respectfully traverse this rejection on the ground that the Examiner is attributing less skill to persons skilled in the art than they actually possessed at the time this application was filed. Furthermore, the Examiner is requiring the applicants to use terminology that he considers to be familiar *to him* without considering that the specification of this application as a whole provides sufficient disclosure that persons skilled in the art will know what is meant by “matched” even though the word “matched” is not one that would always be used in the field.

The application explains in many places what the inventors define as “matched” or “matching” for the purposes of their invention. The specification provides an example at pages 8 and 9, with respect to one of the aspects of the invention, in which the ferromagnetic phase and the grain boundary phase are both face-centered cubic structures and “the composition, crystal type, plane index and azimuthal index of the grain boundary phase \* \* \* are set in accordance with the crystal structure of the ferromagnetic phase so that the ferromagnetic phase will match with the grain boundary phase.” Page 8, lines 16-22. The specification also explains how advantageous magnetic properties are achieved when the ferromagnetic and grain boundary phases are crystallographically matched within certain relationships defined on pages 9-10, 15-16, 22 and 28. The concept of matching is explained consistently throughout the specification, so persons skilled in the art can readily understand what claims 1-4 embrace. The law does not require absolute precision in terminology; it requires enough precision that persons skilled will

have a reasonably clear indication as to what activities fall within the claims and which do not. This application provides sufficient definitional context that persons skilled in the art will know what “matched” and “matching” mean in the claims in this application. It is not necessary that the application specifically contain a definition of “matched” or “matching” in so many words if the terms have a clear meaning in the application, which they do. The Examiner states that applicants have not submitted any evidence that shows that “matched” is a known term in the art. However, applicants are under no obligation to do so where the Examiner has failed to present a *prima facie* case of objective, factual reasons why persons skilled in the art would not know what “matched” means. With all respect to the Examiner, this rejection is based not on objective criteria; it is based on the Examiner’s subjective belief that terms in patent applications are indefinite unless they are art-recognized. That is not the law.

Applicants’ use of the terms “matched” and “matching” also closely parallels the use of the term “coherency,” a term defined in standard reference works. The *Metals Handbook*, Glossary of Metallurgical Terms and Engineering Tables, page 1•8 (Desk ed. 1985), defines “coherency” as “[t]he continuity of lattice of precipitate and parent phase (solvent) maintained by mutual strain and not separated by a phase boundary.” “Coherent precipitate” is defined on the same page as “[a] crystalline precipitate that forms from solid solution with an orientation that maintains continuity between the crystal lattice of the precipitate and the lattice of the matrix, usually accompanied by some strain in both lattices. Because the lattices fit at the interface between precipitate and matrix, there is no discernible phase boundary.” A copy of page 1•8 of the *Metals Handbook* cited herein is attached for the Examiner’s reference. The context of this application shows that applicants have used the terms “matched” and “matching” to have essentially the same meaning as “coherency.” This rejection should be withdrawn.

Claim 2 stands rejected under 35 USC 112, second paragraph, as allegedly being unclear in its use of the term “regularly.” This rejection is respectfully traversed on the ground that persons skilled in the metallurgical and crystallographic arts, to whom this application is addressed, would understand that “regular” means having a definite and repeating pattern in the context of crystal structures and the matching claimed in claim 1, from which claim 2 depends. The Examiner still has presented no *objective, factual* reasons constituting a *prima facie* case why claim 2 is unclear, so the rejection should be withdrawn.

The Examiner’s statement on page 6 of the Action shows that this rejection is based on the Examiner’s subjective belief and not on objective criteria: “It is not clear to the Examiner what ‘factual, objective reasons’ are necessary in making this rejection. The meaning of the term is not clear in the context of claim 2, what more is necessary is not apparent.” Applicants respectfully submit that this statement is an *ipse dixit*, tantamount to saying that a claim term is indefinite because I say it is indefinite. The law requires the Examiner to take the first reasoned, factually based step in rejecting claims. Without such a reasoned step, the Examiner has no basis for finding that this application should be rejected for failure to comply with the law, and applicants have no basis on which to demonstrate that the Examiner’s factual basis is incorrect. As the record now stands, all that appears is a “he [the Examiner] said, they [the applicants] said” situation. The Administrative Procedure Act and the PTO’s duty as an agency to create a factual record to support its decisions require that the Examiner provide a factual record to support his rejection, which, with all respect, he has not done.

Claim 3 stands rejected under 35 USC 112, second paragraph, as being unclear in its use of the word “type.” Applicants respectfully submit that the Examiner still has not provided any reasonable factual basis for his belief that the phrase “crystal type” does not have a meaning that persons skilled in this art would understand *in the context of the specification of this application*.

This application is drafted with reference to the level of knowledge of persons skilled in the metallurgical arts; such persons are familiar with crystallography and its terminology regarding types of crystal structures and thus know what "crystal types" are and would clearly understand the scope of claim 3. For example, crystal types include cubic, tetragonal, rhombohedral etc.

The Examiner has responded to applicants' argument that he has allowed claims in U.S. Patent Nos. 4,770,723 (claim 3) and 4,792,368 (claim 1) that are directed to subject matter related to this application and use the word "type" by saying, "Each application stands on its own and the prosecution of the cited patents has no bearing on the prosecution of the instant application." Although that is a correct statement in many circumstances, it is not correct here for two reasons. First, the cited patents both issued before the effective filing date of this application. As such, they are available as evidence of what persons skilled in the art knew when this application was filed and show that the term "crystal type" was recognized in the particular art to which the invention of this application pertains. Second, the Examiner's statement disparages the cited patents by implying that his approval of the "crystal type" language in the cited patents might have been incorrect. There is no reason to disparage the language of the cited patents. The Examiner of this application certainly knew what he was doing when he allowed the cited patents and has given no factual reason germane to the technical subject matter of this application why the term "type" is unclear in the claims of this application. The MPEP citation reproduced in the Action pertains to a different art and a different record of what persons skilled in the art knew when the application was filed. This rejection should be withdrawn.

Claims 1-4 stand rejected as either anticipated by or obvious over Ueda, Takeshita, Yamamoto '546 or Yamamoto '875. These rejections are respectfully traversed.

Applicants respectfully submit that the Examiner has misinterpreted the claims, by saying at page 7 of the Action that "the features on which applicant relies (i.e. that the grain boundary

phases are free from rare earth elements) are not recited in the rejected claims(s).” Claim 1 defines the grain boundary phase as “consisting essentially of one or more cations selected from the group consisting of Be, Mg, Al, Si, P, Ca, Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Ga, Sr, Zr, Nb, Mn, Cd, In, Sn, Ba, Hf, Ta, Ir, Tl and Pb.” Rare earth elements are cations, so this language excludes them because the presence of rare earth cations in the grain boundary phase would affect the basic and novel characteristics of the invention as claimed. Claim 45 defines the cations in terms of their listed sources, none of which is a rare earth element. Claim 45, as a result, defines a grain boundary phase that does not include rare earth elements. Accordingly, the claims as they presently appear fully support applicants’ previous argument that none of the cited references provides the Examiner any reason to believe factually that persons of ordinary skill in the art would have recognized that the magnets disclosed in the references had grain boundary phases that were free from rare earth elements as claimed. All of the references specifically disclose magnets based on a combination of an R-TM-B ferromagnetic phase and an R-X grain boundary phase, where R is a rare earth element. As a result, the anticipation rejection cannot stand.


The reasoning in the Action also shows the classic tension between obviousness and the use of inherent disclosure. The Examiner admits that “the references do not describe the crystal structure in the same terms as recited in the claims.” Regardless of certain similarities between applicants’ disclosure and the prior art, the prior art does not teach or suggest the grain boundary phase aspect of the claimed invention. Furthermore, the prior art is silent on, and betrays not the slightest appreciation of, the claimed matching between the ferromagnetic phase and the grain boundary phase of magnets made according to this invention. Contrary to what the Examiner states, there is no evidence or reason to believe that the claimed crystal structure is achieved in the prior art *and would have been recognized* by persons of ordinary skill in the art *to have been*

*achieved*. That is the tension that the Examiner's logic does not overcome. The Examiner's logic assumes what it must prove, that it would have been obvious from silent prior art to do what applicants claim as their invention. As stated in MPEP 2141.02, "Obviousness cannot be predicated on what is not known at the time an invention is made, even if the inherency of a certain feature is later established."

Early action allowing claims 1-4, 44 and 45 in this application is solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing Docket No. 251002009000.

Respectfully submitted,



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